

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A system for measuring, dispensing and pneumatically delivering micro-ingredients to a feed ration comprising:

a weigh hopper;

a storage bin including an auger mounted thereto, said auger for metering a desired  
5 amount of a micro-ingredient into said weigh hopper;

a scale mounted to said weigh hopper for determining the weight of the micro-ingredient metered into said weigh hopper from said auger, said auger being activated to meter the desired amount of the micro-ingredient based upon weight indicated by said scale;

a transport line for delivering the micro-ingredient to the feed ration;

10 means intermediate said weigh hopper and said transport line for introducing the micro-ingredient in the transport line;

an eductor mounted in line with said transport line; [[and]]

means for supplying pressurized air through said eductor and through said transport line, wherein said eductor facilitates movement of the micro-ingredient through said means for  
15 introducing and through said eductor into said transport line; and

a discharge device attached to a discharge end of said transport line, said discharge device including a housing body, an inner tube placed within said housing body, said inner tube

communicating with said discharge end for receiving micro-ingredients moving through said transport line, wherein a gap defines an open space between an outer surface of said inner tube and an inner surface of said housing body, said inner tube and said body each having a downstream end terminating substantially coterminous with one another, and wherein a flow of liquid is provided through said housing body through said gap whereby as said micro-ingredients exit said discharged device, said liquid concentrically surrounds said micro-ingredients.

2. (Original) A system, as claimed in Claim 1, wherein:

said bin includes a plurality of bins each having a corresponding auger for metering separate micro-ingredients into said weight hopper.

3. (Original) A system, as claimed in Claim 1, wherein:

said weigh hopper includes a plurality of weigh hoppers;

said bin includes a plurality of bins each having a corresponding auger for metering separate micro-ingredients from each of said bins into corresponding weigh hoppers of said plurality of weigh hoppers; and

said means for introducing includes a plurality of means for introducing enabling the separate micro-ingredients to be introduced into the transport line.

4. (Original) A system, as claimed in Claim 3, wherein:

said scale includes a plurality of scales, one scale of said plurality of scales being mounted to each weigh hopper of said plurality of weigh hoppers for separately determining the weight of micro-ingredients in each of said weigh hoppers.

5. (Original) A system, as claimed in Claim 3, wherein:

said transport line includes a plurality of transport lines for separately conveying the micro-ingredients, said means for supplying pressurized air communicating with each of said plurality of transport lines thereby causing transport of the micro-ingredients through the plurality of transport lines.

6. (Original) A system, as claimed in Claim 5, wherein:

said means for supplying pressurized air includes a plurality of means for supplying pressurized air so that each transport line of said plurality of transport lines has a dedicated means for supplying pressurized air therethrough.

7-9. (Canceled)

10. (Withdrawn) A method of measuring, dispensing, and pneumatically delivering micro-ingredients to a feed ration, said method comprising the steps of:

providing a bin for storing a quantity of a micro-ingredient;

metering the micro-ingredient from the bin to a weigh hopper;

5 weighing the micro-ingredient in the weight hopper;

providing a transport line and an eductor placed in line with transport line;

pressurizing the transport line and eductor by a source of pressurized air;

operating the eductor to draw the micro-ingredient from the weigh hopper and into the  
transport line; and

10 pneumatically transferring the micro-ingredient to the feed ration without the addition of  
liquid to the micro-ingredient while the micro-ingredient is in the transport line, bin and hopper.

11. (Withdrawn) A method, as claimed in Claim 10, further comprising the steps of:

providing a discharge device at a discharge end of the transport line; and

providing a flow of liquid through the device creating a curtain of liquid surrounding the  
micro-ingredient as the micro-ingredient exits a discharge end of the discharge device.

12. (Withdrawn) A method, as claimed in Claim 10, further comprising the steps of:

providing a mixing device at a discharge end of the transport line; and

introducing a flow of liquid through the mixing device simultaneous with flow of the  
micro-ingredient thereby resulting in a slurry mixture of the micro-ingredient and liquid.

13. (Withdrawn) A method, as claimed in Claim 10 wherein:

said storage bin includes a plurality of bins and said weigh hopper includes a plurality of weigh hoppers wherein separate micro-ingredients are stored in each bin, and each micro-ingredient is metered to a corresponding weigh hopper, each weigh hopper weighing the micro-ingredient therein prior to transfer of the micro-ingredient to the transport line.

14. (Withdrawn) A method, as claimed in Claim 10, wherein:

said weighing step is achieved by measuring the gain of weight by addition of the micro-ingredient to the weigh hopper.

15. (Withdrawn) A method of measuring, dispensing, and pneumatically delivering micro-ingredients to a feed ration, said method comprising the steps of:

providing a storage bin for storing a quantity of a micro-ingredient;

metering the micro-ingredient from the bin to a means for temporarily storing the metered micro-ingredient;

recording the loss of weight in the bin after the micro-ingredient has been metered to the means for storing, the recorded loss of weight corresponding to the amount of the micro-ingredient metered to the means for storing;

providing a transport line and an eductor mounted in line with the transport line;

pressurizing the transport line and eductor by a source of pressurized air;

operating the eductor to draw the micro-ingredient from the means for storing into the transport line; and

pneumatically transferring the micro-ingredient to the feed ration, said transferring step being achieved without the addition of liquid in the transport line, bin, and hopper.

16. (Withdrawn) A method, as claimed in Claim 15, further comprising the steps of:  
providing a discharge device at a discharge end of the transport line; and  
providing a flow of liquid through the device creating a curtain of liquid surrounding the micro-ingredient as the micro-ingredient exits a discharge end of the discharge device.

17. (Withdrawn) A method, as claimed in Claim 15, further comprising the steps of:  
providing a mixing device at a discharge end of the transport line; and  
introducing a flow of liquid through the mixing device simultaneous with the flow of the micro-ingredient thereby resulting in a slurry mixture of the micro-ingredient and liquid.

18. (Withdrawn) A method, as claimed in Claim 15, wherein:  
said storage bin includes a plurality of bins and said means for temporarily storing includes a plurality of means for temporarily storing wherein separate micro-ingredients are stored in each storage bin, and each micro-ingredient is metered into a corresponding means for temporarily storing.

19. (Withdrawn) A method of measuring, dispensing, and pneumatically delivering micro-ingredients to a feed ration, said method comprising the steps of:

providing a storage bin for storing a quantity of a micro-ingredient;

metering the micro-ingredient from the bin to a means for temporarily storing the metered  
5 micro-ingredient, said metering step resulting in delivery of a predetermined and desired quantity of the micro-ingredient to the means for storing;

providing a transport line and an eductor mounted in line with the transport line;

pressurizing the transport line and eductor by a source of pressurized air;

operating the eductor to draw the micro-ingredient from the means for storing into the  
10 transport line; and

pneumatically transferring the micro-ingredient to the feed ration, without addition of liquid to the micro-ingredient while the micro-ingredient is in the bin, hopper and transport line.

20. (Withdrawn) A method, as claimed in Claim 19, further comprising the steps of:

providing a discharge device at a discharge end of the transport line; and

providing a flow of liquid through the device creating a curtain of liquid surrounding the micro-ingredient as the micro-ingredient exits a discharge end of the discharge device.

21. (Withdrawn) A method, as claimed in Claim 19, further comprising the steps of:  
providing a mixing device at a discharge end of the transport line; and  
introducing a flow of liquid through the mixing device simultaneous with the flow of the  
micro-ingredient thereby resulting in a slurry mixture of the micro-ingredient and liquid.

22. (Withdrawn) A method, as claimed in Claim 19, wherein:  
said storage bin includes a plurality of bins and said means for temporarily storing  
includes a plurality of means for temporarily storing wherein separate micro-ingredients are  
stored in each storage bin, and each micro-ingredient is metered into a corresponding means for  
temporarily storing.

23. (New) A system, as claimed in Claim 1, wherein:  
said discharge device further includes a flange connected to the downstream end of said  
inner tube wherein said flange acts as a nozzle to accelerate liquid flowing in said gap between  
said inner tube and said housing body.

24. (New) A system for measuring, dispensing and pneumatically delivering micro-  
ingredients to a feed ration comprising:

a weigh hopper;

a storage bin including an auger mounted thereto, said auger for metering a desired  
amount of a micro-ingredient into said weigh hopper;



a scale mounted to said weigh hopper for determining the weight of the micro-ingredient metered into said weigh hopper from said auger, said auger being activated to meter the desired amount of the micro-ingredient based upon weight indicated by said scale;

a transport line for delivering the micro-ingredient to the feed ration;

10 means intermediate said weigh hopper and said transport line for introducing the micro-ingredient in the transport line;

an eductor mounted in line with said transport line;

means for supplying pressurized air through said eductor and through said transport line, wherein said eductor facilitates movement of the micro-ingredient through said means for

15 introducing and through said eductor into said transport line; and

a discharge device attached to a discharge end of said transport line, said discharge device including a housing body, an inner tube placed within said housing body, said inner tube communicating with said discharge end for receiving micro-ingredients moving through said transport line, wherein a gap defines an open space between an outer surface of said inner tube and an inner surface of said housing body, said inner tube has a downstream end, and said  
20 housing body has a downstream end extending beyond said downstream end of said inner tube to enable mixing of micro-ingredients and liquid.

25. (New) A system for measuring, dispensing and pneumatically delivering micro-ingredients to a feed ration comprising:

a weigh hopper;

a storage bin including an auger mounted thereto, said auger for metering a desired  
5 amount of a micro-ingredient into said weigh hopper;

a scale mounted to said weigh hopper for determining the weight of the micro-ingredient  
metered into said weigh hopper from said auger, said auger being activated to meter the desired  
amount of the micro-ingredient based upon weight indicated by said scale;

a transport line for delivering the micro-ingredient to the feed ration;

10 means intermediate said weigh hopper and said transport line for introducing the micro-  
ingredient in the transport line;

an eductor mounted in line with said transport line;

means for supplying pressurized air through said eductor and through said transport line,  
wherein said eductor facilitates movement of the micro-ingredient through said means for  
15 introducing and through said eductor into said transport line;

a discharge device attached to a discharge end of said transport line, said discharge device  
including a housing body, an inner tube placed within said housing body, said inner tube  
communicating with said discharge end for receiving micro-ingredients moving through said  
transport line, wherein a gap defines an open space between an outer surface of said inner tube  
20 and an inner surface of said housing body; and

a mixing tube extension attached to a downstream end of said discharge device, said  
mixing tube extension thereby promoting mixing of the micro-ingredients and liquid.

26. (New) A system, as claimed in Claim 25, wherein:

said mixing tube extension further includes a mixing plate placed transversely within said mixing tube extension thereby blocking at least some portion of an inside passageway of said mixing tube and promoting turbulent flow of the micro-ingredients and liquid for mixing.

27. (New) A system for measuring, dispensing and pneumatically delivering micro-ingredients to a feed ration comprising:

a weigh hopper;

a storage bin including an auger mounted thereto, said auger for metering a desired  
5 amount of a micro-ingredient into said weigh hopper;

a scale mounted to said weigh hopper for determining the weight of the micro-ingredient metered into said weigh hopper from said auger, said auger being activated to meter the desired amount of the micro-ingredient based upon weight indicated by said scale;

a transport line for delivering the micro-ingredient to the feed ration;

10 means intermediate said weigh hopper and said transport line for introducing the micro-ingredient in the transport line;

an eductor mounted in line with said transport line;

means for supplying pressurized air through said eductor and through said transport line, wherein said eductor facilitates movement of the micro-ingredient through said means for  
15 introducing and through said eductor into said transport line; and

a mixing manifold connected to a discharge end of said transport line for mixing a stream of liquid and the micro-ingredients passing therethrough, said mixing manifold including a housing, a first inlet port communicating with said housing and arranged substantially parallel to a longitudinal axis of said housing, a second inlet port communicating with said housing and arranged at an angle to said longitudinal axis, wherein the liquid is introduced through said second inlet port and said micro-ingredients are introduced through said first inlet ports for mixing of the micro-ingredients and liquid within the housing.

28. (New) A system, as claimed in Claim 27, wherein:

said second inlet port includes a tapered downstream end disposed within said housing for accelerating flow of liquid therethrough.

29. (New) A system for measuring, dispensing and pneumatically delivering micro-ingredients to a feed ration comprising:

a weigh hopper;

a storage bin including an auger mounted thereto, said auger for metering a desired amount of a micro-ingredient into said weigh hopper;

a scale mounted to said weigh hopper for determining the weight of the micro-ingredient metered into said weigh hopper from said auger, said auger being activated to meter the desired amount of the micro-ingredient based upon weight indicated by said scale;

a transport line for delivering the micro-ingredient to the feed ration;

10 means intermediate said weigh hopper and said transport line for introducing the micro-ingredient in the transport line;

an eductor mounted in line with said transport line;

means for supplying pressurized air through said eductor and through said transport line, wherein said eductor facilitates movement of the micro-ingredients through said means for

15 introducing and through said eductor into said transport line;

a first discharge device attached to a discharged end of said transport line, said discharge device including a housing, a first inlet port for receiving a flow of the micro-ingredients from said transport line, a second inlet port communicating with a source of liquid for providing liquid to said housing and for mixing with the micro-ingredients; and

20 a second discharge device connected to a downstream end of said first discharge device, said second discharge device comprising at least one of a static mixer and an eductor.

30. (New) A system, as claimed in Claim 29, wherein:

said static mixer includes a pattern of internal baffles mounted therein.

31. (New) A system, as claimed in Claim 29, wherein:

said eductor includes an interior tube disposed within said eductor for providing a supply of liquid into the eductor.